REMARKS

Claims 3, 5-8, 10-13 and 26-36, as amended, remain herein. Claims 1, 2, 14, 15, 17, 18 and 20-25 have been cancelled without prejudice. Claims 3, 5-8 and 10-13 have been amended to correct the claim dependency and clerical errors. New claims 26-36 have been added. Support for the new claims may be found throughout the specification (see, e.g., original claims; and data for Examples 1-5 in Table 2 at pages 47-48 of the specification).

This Amendment is believed to place this application fully in condition for allowance, and surely in better condition for any appeal. Thus, entry of this Amendment and allowance of all claims are respectfully requested.

1. Claim 21 has been cancelled thereby mooting the objection to that claim.

2. Claims 1-3 and 5-13 were rejected under 35 U.S.C. § 112, first paragraph. The Office Action alleges that there is no sufficient support for relation (C) in claim 1.

Applicants' present claim 35 (which corresponds to former claim 1) recites a light-emitting-layer material, a first dopant and a second dopant that satisfy the following relation (C):

(C) $EG0 > EG1 \geq 2.6$ eV and $EG0 > EG2 \geq 2.8$ eV

Applicants' original claim 1 recited a light-emitting-layer material, a first dopant and a second dopant that satisfy the following relation (C):

(C) EG0>EG1 and EG0>EG2

In addition, Table 2 of applicants' specification (the relevant part is reproduced below)

Table 2

□	Light emitting layer material		First dopant		Second dopant		Type
Exam. 1	H1	EV0:5.7 EC0:2.7 Eg0:3.0	D1	EV1:5.5 EC1:2.7 **Eg1:2.8**	D2	EV2:5.4 EC2:2.6 **Eg2:2.8**	①
Exam. 2	H2	EV0:5.7 EC0:2.8 Eg0:2.9	D1	EV1:5.5 EC1:2.7 **Eg1:2.8**	D3	EV2:5.4 EC2:2.5 **Eg2:2.9**	②
Exam. 3	H2	EV0:5.7 EC0:2.8 Eg0:2.9	D2	EV1:5.4 EC1:2.6 **Eg1:2.8**	D3	EV2:5.4 EC2:2.5 **Eg2:2.9**	②
Exam. 4	H1	EV0:5.7 EC0:2.7 Eg0:3.0	D4	EV1:5.6 EC1:3.0 **Eg1:2.6**	D2	EV2:5.4 EC2:2.6 **Eg2:2.8**	①
Exam. 5	H3	EV0:5.7 EC0:2.7 Eg0:3.0	D1	EV1:5.5 EC1:2.7 **Eg1:2.8**	D2	EV2:5.4 EC2:2.6 **Eg2:2.8**	①

shows that: EG1 $\geq$ 2.6 eV is satisfied for all of applicants' Examples 1-5 (one data point shows EG1 = 2.6 eV and the other four data points show that EG1 > 2.6 eV) and EG2 $\geq$ 2.8 eV is satisfied for all of applicants' Examples 1-5 (three data points show EG2 = 2.8 eV and the other two data points show that EG2 > 2.8 eV). Thus, applicants' specification provides ample support for relation (C) as now stated in claim 35.

Applicants respectfully request reconsideration and withdrawal of this rejection.

3. Claims 14, 15, 17, 18 and 20-25 were rejected under 35 U.S.C. § 112, first paragraph. Claim 26 corresponds to former claim 14 but recites additional limitations, including the requirement that the light-emitting-layer material, the first dopant and the second dopant satisfy the following relation (C'): EG0 > EG1 $\geq$ 2.6 eV and EG0 > EG2 $\geq$ 2.8 eV.

The standard for determining whether a patent specification meets the enablement requirement is whether the experimentation needed to practice the invention is not undue or unreasonable. *See Mineral Separation v. Hyde*, 242 U.S. 261, 270 (1916); *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988); MPEP 2164.01. The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. *See In re Wands*, 858 F.2d at 737; *In re Angstadt*, 537 F.2d 498, 504 (C.C.P.A. 1976); MPEP 2164.01.

Here, applicants' claims recite specific valence electron level, conduction level, and/or energy gap relationships between the light-emitting-layer material, the first dopant, and the second dopant. These relationships allow the first dopant and/or the second dopant to capture the holes injected into the light-emitting-layer material (see, e.g., page 11, line 20 to page 12, line 25 of the specification). This achieves an organic electroluminescence element having a high luminance, high efficiency, and a long durability.

The results described above can be achieved with different compounds having different chemical structures as long as the compounds satisfy the claimed valence electron level, conduction level, and/or energy gap relationships. A person of ordinary skill in the art can measure, without undue experimentation, the valence electron levels, conduction levels, and energy gaps of various dopants and light-emitting-layer materials, and select, based on these measurements, select which compounds to use.

The allegation in the Office Action that applicants disclose only a few examples of potential materials suitable for the light-emitting layer material and the dopant materials, fails to establish that undue experimentation would be required. In fact, the presence of working examples weighs against any conclusion that applicants' disclosure is not enabling. One of

ordinary skill in the art would have known how to practice applicants' invention without undue experimentation. Applicants' specification provides adequate guidance for measuring the valence electron levels, conduction levels, and energy gaps (see, e.g., page 38, line 24 to page 39, line 6 of the specification). Applicants respectfully request reconsideration and withdrawal of this rejection.

4. Claims 1-3, 5-8, 10-15, 17, 18 and 20-25 were rejected under 35 U.S.C. § 103(a) over Sakai et al. U.S. Patent Application Publication 2002/0136922 with evidence from Hosokawa et al. U.S. Patent 7,087,322. The Office Action alleges that Sakai discloses a light-emitting layer material (bisanthracene compound 6-1), a first dopant (DPVDPAN), and a second dopant (DMPAVB).

Applicants' claims 26 and 35 recite an organic electroluminescence element comprising: a pair of electrodes, and a light emitting layer provided between the pair of electrodes, the layer comprising a light-emitting-layer material, a first dopant and a second dopant, wherein the content of each of the first dopant and the second dopant is 20 wt% or less of the light emitting layer.

As admitted in the Office Action, Sakai does not disclose applicants' claimed content of first and second dopant. In fact, Sakai nowhere discloses the use of two dopants. Instead, Sakai discloses the use of a bis-condensed aromatic cyclic compound in addition to the light emitting material (and to a fluorescent compound) to suppress crystallization and to improve the durability of the organic electroluminescence device. As admitted in the Office Action, Sakai discloses higher contents of the light emitting material and bis-condensed aromatic cyclic compound. The Office Action states that Sakai at paragraph [0033] suggests lower amounts of

the light emitting material. However, paragraph [0033] of Sakai discloses no less than 40% of the light emitting material (which according to the Office Action, corresponds to applicants' first dopant). The Office Action further states that the content of dopant is obvious. However, differences in concentration are not obvious when there is evidence indicating such concentration is important to proper functioning of the invention. See MPEP § 2144.05(II)(A). In this case, applicants' specification explains that:

> However, an organic EL element having a sufficient efficiency and durability has not been developed.
>
> For example, the use of a dopant for carrier transportation or excitation energy shift in a light emitting layer is disclosed. In particular, the following light emitting layers are disclosed: a light emitting layers using Alq, which is an organic metal complex, as a host material, a fluorescent dye such as DCM1, DCM2 or Nile Red as a luminescent dopant, DPA, OXD8 or the like as a dopant for carrier transportation, and/or rubrene or the like as a dopant for excitation energy shift (see, for example, Japanese Patent Application Laid-Open No. 2000-164362 (Examples 7 to 16)).
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> In this technique, however, the light emitting layer captures both kinds of charges of holes and electrons by using a single luminescent dopant; therefore, the luminescent wavelength therefrom is inconveniently long. In other words, when materials are selected respectively in order to make the injection efficiency of charges from electrodes good, the energy gap between the valence electron level of the selected hole transporting material and the conductive level of the selected electron transporting material becomes about 2.5 eV or less, so as to cause a problem that light having a longer wavelength than yellowish green wavelengths is emitted.
>
> In order to make the durability of an organic EL element longer, a luminescent dopant having an electron trapping property is added thereto. When the addition concentration thereof is increased to sufficiently obtain the advantageous effect of the dopant, the electron trapping property becomes stronger so as to cause a problem that the driving voltage of the organic EL element becomes high.
>
> Further, when the addition concentration becomes larger, the molecules of the dopant contact each other, thereby causing concentration quenching to result in a problem that the efficiency of the organic EL element becomes low.
>
> . . .

> A dopant needs to be added up to a concentration that the dopant can sufficiently capture holes injected into the light-emitting-layer material. In the case that two kinds of dopants having the above-mentioned relations are added, the concentration of the each of the dopants is relatively smaller than in the case that only one kind of dopant is added. It is therefore possible to restrain concentration quenching based on contact between the dopants. For this reason, the durability of the organic EL element can be made long.
>
> . . .
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> The amounts of the first and second dopants added to the whole of the light emitting layer are each preferably 20% or less by weight, in particular preferably from 1 to 10% by weight. If each of the amounts is more than 20% by weight, the concentration of the dopant is too high so that the luminescent efficiency may lower.

Applicants' specification, page 3, line 21 to page 4, line 28; page 13, line 29 to page 14, line 8; and page 26, lines 21-26 (emphasis added here). Thus, a person of ordinary skill in the art would not view Sakai's use of DPVDPAN as a dopant but as a host because of its content and because of the well known phenomenon of concentration quenching.

Applicants' use of a specific content of two dopants which have specific valence electron levels, specific conduction levels, and specific energy gaps relative to the light emitting material, is not obvious and achieves an organic electroluminescence element having unexpectedly superior luminance, efficiency, and durability (compare applicants' Examples 1-5 to Comparative Examples 2, 4, 6 and 9 in Table 3, at pages 49-50 of applicants' specification).

Thus, Sakai does not disclose all elements of applicants' claimed invention, or disclose anything that would have suggested applicants' claimed invention to one of ordinary skill in the art. Further, there is no disclosure or teaching in Sakai, or otherwise in this record, that would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. For all the foregoing reasons, applicants respectfully request reconsideration and withdrawal of this rejection.

Accordingly, all claims 3, 5-8, 10-13 and 26-36 are now fully in condition for allowance and a notice to that effect is respectfully requested. The PTO is hereby authorized to charge/credit any fee deficiencies or overpayments to Deposit Account No. 19-4293. If further amendments would place this application in even better condition for issue, the Examiner is invited to call applicant's undersigned attorney at the number listed below.

Respectfully submitted,

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